

## ABSTRACT

Data throughput rate in a power line communications ("PLC") system is controlled by generating PLC carrier signals in accordance with a PLC signal frame structure containing payload symbols where orders of modulation are selected for the individual PLC carriers based on evaluation of at least one of a PLC system channel quality and node configuration data. The selected orders of modulation determine the processing operations that a source PLC transceiver performs for generating PLC signals or that a destination PLC transceiver performs for extracting information content from received PLC signals. The orders of modulation can be selected to maximize the data throughput rate while maintaining compatibility with prior art PLC system protocols and standards that require a PLC signal frame structure and its payload portion to have fixed, predetermined lengths.